

What is claimed:

1. A mobile wireless LAN system for automating transportation fleet operations, mounted on a transportation vehicle, comprising:

a plurality of wireless nodes;

5 a wireless LAN located on said transportation vehicle for exchanging communications among said plurality of wireless nodes; and

wherein said plurality of wireless nodes includes a plurality of wireless sensors for detecting a plurality of functions associated with at least one of: said transportation vehicle and a cargo transported by said transportation vehicle and
10 for generating wireless sensor data representative of said detected plurality of functions associated with at least one of: said transportation vehicle and a cargo transported by said transportation vehicle.

2. The mobile wireless LAN system of claim 1 further comprising:

15 a hub connected to and serving said wireless LAN for managing the exchange of said data, including said wireless sensor data, among said plurality of wireless nodes and said hub.

3. The mobile wireless LAN system of claim 2 further comprising:

20 a wireless transceiver connected to said wireless LAN for exchanging data, including said wireless sensor data, with a wireless transceiver at a fixed location removed from said transportation vehicle.

4. The mobile wireless LAN system of claim 3 further comprising:

25 at least one fixed LAN, including a wireless transceiver, at a fixed location for receiving said transmitted wireless sensor data from said wireless transceiver located on said transportation vehicle.

5. The mobile wireless LAN system of claim 4 further comprising:

30 a GPS receiver located on said transportation vehicle for receiving GPS position and time signals; and

a long-range signal transmission system located on said transportation vehicle coupled to said GPS receiver and to said wireless LAN for exchanging data, including said GPS signals and said wireless LAN sensor data, with said at least

one fixed LAN at said fixed location.

6. The mobile wireless LAN system of claim 1 further comprising:

at least one display unit coupled to said wireless LAN for displaying said

5 wireless sensor data.

7. The mobile wireless LAN system of claim 1 wherein said plurality of wireless sensors on said transportation vehicle comprise at least one of the class of environmental sensors comprising:

10 a wireless sensor for measuring tire pressure and temperature;

a wireless sensor for measuring cargo temperature;

a wireless sensor for detecting when vehicle cargo doors are opened/closed;

at least one wireless sensor for measuring engine component functions;

15 a wireless sensor coupled to a refrigeration unit mounted on said transport vehicle for transmitting refrigerator function data to said wireless LAN for transmission.

8. The mobile wireless LAN system of claim 1 further comprising at least one data reader from the class of fixed location data readers comprising:

20 at least one fixed gateway data reader at locations including at least one of: entry stations, gates, guard shacks, and loading docks for receiving transmissions from said wireless LAN on said transportation vehicle;

at least one hand-held bar-code reader to be used by either the driver or personnel at said fixed location to scan individual bar-coded cargo items for
25 purposes of tracking cargo

at least one RFID reader as an automatic-data-capture device for tracking cargo, personnel, and managing cargo.

9. The mobile wireless LAN system of claim 1 further comprising:

30 electronic/electromagnetic door locks on said transportation vehicle doors;
and

a telemetry tag adapted to control said door locks to both enable and disable said door locks from said fixed location remote from said transportation vehicle.

10. A method of operating a mobile wireless LAN system for automating transportation fleet operations, mounted on a transportation vehicle and including a plurality of wireless nodes, comprising the steps of:

exchanging communications among said plurality of wireless nodes using a

5 wireless LAN located on said transportation vehicle; and

detecting a plurality of functions associated with at least one of: said transportation vehicle and a cargo transported by said transportation vehicle using a plurality of wireless sensors; and

10 generating wireless sensor data representative of said detected plurality of functions associated with at least one of: said transportation vehicle and a cargo transported by said transportation vehicle.

11. The method of operating a mobile wireless LAN system of claim 10 further comprising the step of:

15 managing the exchange of said data, including said wireless sensor data, among said plurality of wireless nodes and a hub connected to said wireless LAN.

12. The method of operating a mobile wireless LAN system of claim 11 further comprising the step of:

20 exchanging, using a wireless transceiver connected to said wireless LAN, data, including said wireless sensor data, with a wireless transceiver at a fixed location removed from said transportation vehicle.

13. The method of operating a mobile wireless LAN system of claim 12 further comprising the step of:

receiving, at least one fixed LAN, said transmitted wireless sensor data from said wireless transceiver located on said transportation vehicle.

14. The method of operating a mobile wireless LAN system of claim 13 further comprising the steps of:

receiving, via a GPS receiver located on said transportation vehicle, GPS position and time signals; and

exchanging, via a long-range signal transmission system located on said transportation vehicle coupled to said GPS receiver and to said wireless LAN, data,

including said GPS signals and said wireless LAN sensor data, with said at least one fixed LAN at said fixed location.

15. The method of operating a mobile wireless LAN system of claim 10
5 further comprising the step of:
displaying, via at least one display unit coupled to said wireless LAN, said wireless sensor data.

16. The method of operating a mobile wireless LAN system of claim 10
10 wherein said plurality of wireless sensors on said transportation vehicle comprise at least one of the class of environmental sensors, comprising:
a wireless sensor for measuring tire pressure and temperature;
a wireless sensor for measuring cargo temperature;
a wireless sensor for detecting when vehicle cargo doors are opened/closed;
15 at least one wireless sensor for measuring engine component functions;
a wireless sensor coupled to a refrigeration unit mounted on said transport vehicle for transmitting refrigerator function data to said wireless LAN for transmission.

17. The method of operating a mobile wireless LAN system of claim 10
20 further comprising at least one data reader from the class of fixed location data readers comprising:

at least one fixed gateway data reader at locations including at least one of: entry stations, gates, guard shacks, and loading docks for receiving transmissions
25 from said wireless LAN on said transportation vehicle;

at least one hand-held bar-code reader to be used by either the driver or personnel at said fixed location to scan individual bar-coded cargo items for purposes of tracking cargo

at least one RFID reader as an automatic-data-capture device for tracking
30 cargo, personnel, and managing cargo.

18. The method of operating a mobile wireless LAN system of claim 10 further comprising:

operating electronic/electromagnetic door locks on said transportation

13460.127

vehicle doors; and

using a telemetry tag adapted to control said door locks to both enable and disable said door locks from said fixed location remote from said transportation vehicle.